Patient Handoffs: Study of Residents, Nurse Practitioners, and Registered Nurses

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Background and Methods

Background: Patient handoffs as communication vehicles are critical to patient care and have increased 40% since the ACGME-mandated reduction in duty hours [1]. Often thought of as a vulnerability to patient safety, they can also be a valuable source of resilience when incoming clinicians apply a fresh perspective to the clinical situation. Resident physician, nurse practitioner, and nurse handoffs were studied to understand differences in handoff strategies in order to compile best practice strategies.

Methods: 52 resident physician patient handoffs, 23 nurse practitioner patient handoffs, and 23 nurse patient handoffs were observed, audio-recorded, and coded into a priori categories of conversation topic and mode[2]. Data was analyzed to determine differences in duration, topic, and mode. Last, examples of collaborative cross-checking, an error detection strategy, were examined further.

Hypothesis

Resident physician handoffs will be shorter, more variable, and employ more error detection strategies than registered nurses, but that there will be no differences with nurse practitioners, which have comparable responsibilities as resident physicians.

Codes-Topics and Modes

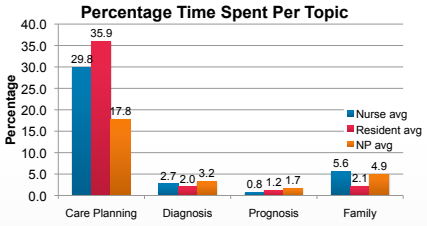
Topics of Conversation in Handoffs

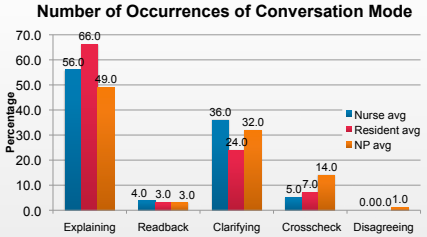
Code	Description
Care Plan	What has been done, is being done, and will be done to help the patient reach the end goal. This includes current drug regimen, future procedures, or any other aspect of their treatment plan. This is the more strategic side of patient care.
Diagnosis	Anything having to do with what is causing the patient's symptoms or status. This includes sepsis, diseases or physiological issues (inflammation, infection, etc.) that cause the symptoms / status.
Family	Any comments regarding the family of the patient.
Prognosis	The end expectation of the patient. At the highest level, this is the big goal of either getting better or making the patient comfortable.

Topics of Conversation in Handoffs

Code	Description
Explaining	Outgoing clinician delivers patient-relevant information to incoming clinician(s)
Clarifying	Questions that seek to clarify or repeat information. Primary intent is to confirm understanding or to clear up gap in knowledge.
Cross-checking	Joint problem solving and/or formulation of diagnostic and/or treatment plan. Includes "what if" and "why" questions as well as playing "devil's advocate". Primary intent is to make sure that current plan is the correct one, alternatives have been thought out, or understand the intent behind the plan.
Disagreeing	Comment expressing that the previous comment or current direction is incorrect

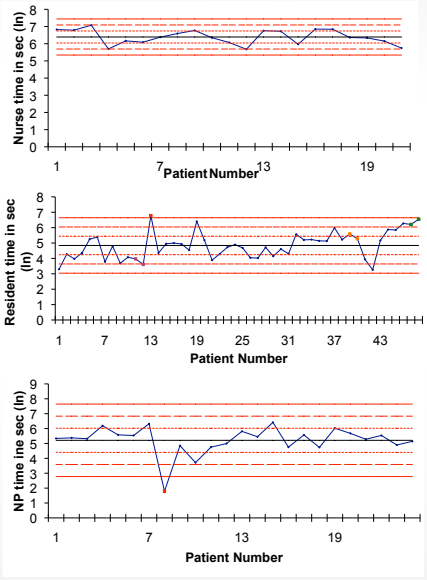
Results – Topics and Modes





Results – Duration

	Nurses	NP	Resident	p
Avg. Duration Per Patient (sec)	647	240	183	<.001
St. Dev. (sec)	257	151	195	



Collaborative Cross-checking

Resident physicians showed higher incidence of cross-checking, especially in "hard cases". There is strong indication that they effectively modulated their use of collaborative cross-checking to match the clinical situation. Below are some characteristics of the cross-checking.

"Butting In"

- 2 resident handoffs had extensive conversation outside of the handoff dyad
  - Both had 7 cross-checking segments (resident average was 1.43)

Uncertainty

- Phrases of diagnosis and prognosis uncertainty predicted larger number of cross-checking segments
- Patient 57: 75% through handoff, outside (non-responsible) resident "butted in" to communicate uncertainty, dynamics of conversation (mode and topic) changed immediately

Discussion / Next Steps

•Hypotheses supported regarding comparison between resident physicians and registered nurses
•Resident physician patient handoffs were shorter, more variable, and used more error detection strategies than nurse handoffs
•Nurse practitioners occupied a middle position on all of the measures between resident physicians and nurses, likely due to differences in the patient load, culture, procedures, and phone rather than in-person communications.

Handoff training materials are being developed based on this research. The following questions will be answered:

- How do you best use the handoff time?
- What tools (paper, EHR, etc.) should or should not be instituted for the "optimal" handoff?
- How does the clinician pair effectively understand "where they are"? This includes patient condition, amount of uncertainty, and employing error deduction strategies.
- How do we reshape handoff, per patient, based on that understanding?

Acknowledgements/References

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- 2. Sledd R, Bass E, Borowitz S. Supporting the characterization of sign-out in acute care wards. In: *Proceedings of the Human Factors and Ergonomics Society Meeting*, 2006, 92-97.